Amendments to the Claims

Prior to further substantive examination, please amend claims 1, 6-9 and 12, and add new claims 13-16 as follows. Claim 10 was previously canceled. The following list of claims will replace all prior versions and lists of claims in the application.

Listing of Claims

1. (Currently amended) A catalyst system for polymerisation of ethylene, said catalyst system comprising chromium oxide and a metallocene compound supported on [~~an~~] a particulate, inorganic oxide support; [~~support, characterised by:~~

~~a) said support being a particulate inorganic oxide;~~

~~b)~~] wherein chromium of said chromium oxide [~~being~~] is in a reduced oxidation state, and

[~~c) a~~] said metallocene compound [~~having a~~] has the formula:

$$Cp_2ZrR'R''$$

wherein each Cp, being equal or different, is an unsubstituted or substituted cyclopentadienyl compound, and R' and R'', independent of each other, are selected from the group consisting of alkyls having 1 to 6 carbon atoms, unsubstituted or substituted benzyl, and phenoxy substituted with alkyls having 1 to 6 carbon atoms, and R' or R'' may be a halide, and characterized by a molar ratio between zirconium and chromium in the final catalyst in a range from 0.1:1 to not higher than 2:1;

said catalyst system produced by a process wherein reduction of chromium is performed at a temperature within the range from 300°C to 500°C.

2. (Previously presented) A catalyst system according to claim 1, characterised in that the cyclopentadienyl compound is substituted with radicals selected from the group consisting of unsubstituted and substituted linear, branched, cyclic or partially cyclic alkyl radicals and annelated cyclic radicals, containing 1 to 20 carbon atoms; unsubstituted and substituted monocyclic or polycyclic aryl radicals which optionally also may contain hetero atoms; and aralkyl radicals; wherein substituents on the cyclopentadienyl ring may also form annelated structures comprising one or more fused benzene, naphtalene or cyclohexene rings, which

optionally may contain hetero atoms, and the two cyclopentadienyl rings may also be connected through a bridge.

3. (Previously presented) A catalyst system according to claim 1, characterised in that R' and R" are selected from the group consisting of chloride, methyl, benzyl or phenoxymethyl, and combinations thereof.

4. (Previously presented) A catalyst system according to claim 1, characterised in that Cp is an unsubstituted cyclopentadienyl and that R' and R" are equal and are either methyl or benzyl.

5. (Previously presented) A catalyst system according to claim 1, characterised in that the metallocene is bis-cyclopentadienylzirconium dibenzyl.

6. (Currently amended) A catalyst system according to claim 1, characterised in that said [~~support is a~~] particulate, inorganic oxide support is selected from the group consisting of alumina, silica, titania, zirconia, magnesia, and combinations thereof.

7. (Currently amended) A catalyst system according to claim 6, characterised in that said particulate, inorganic oxide support is silica having a shape of spherical or spheroidal particles with a particle size in a range of from 20 μm to 150 μm, and a surface area from 200 m^2/g to 600 m^2/g.

8. (Currently amended) A catalyst system according to claim 1, characterised in that the chromium is present in an amount from 0.1 % to 10 % by weight calculated as metallic chromium based on weight of the [~~chromium/silica~~] chromium/particulate, inorganic oxide catalyst[~~ of a) and b)~~].

9. (Currently amended) A catalyst system according to claim 8, characterised in that the chromium is present in an amount from 0.5 to 2.0 % by weight calculated as metallic chromium based on weight of the chromium/particulate, inorganic oxide catalyst.

10. (Canceled)

11. (Previously presented) A catalyst system according to claim 1, characterised in that said molar ratio between zirconium and chromium is from 0.5:1 to 1:1.

12. (Currently amended) A method for the preparation of a catalyst system for polymerisation of ethylene, comprising chromium oxide and a metallocene supported on an inorganic support, the method comprising the steps of:

a) calcining a support being a particulate, inorganic oxide selected from the group consisting of alumina, silica, titania, zirconia, magnesia, and combinations thereof,

b) joining onto a surface of said support a [~~chromiumorganic~~] chromium-organic compound to obtain a catalyst precursor,

c) subjecting said catalyst precursor to oxidising conditions to obtain chromium in an oxidised state, and

d) subjecting said catalyst precursor to reducing conditions to obtain a prereduced catalyst, characterised by

e) reducing the oxidised chromium to obtain a main part thereof in a bivalent oxidation state, and

f) contacting said reduced catalyst with a metallocene compound having a formula:

$$Cp_2ZrR'R''$$

wherein each Cp, equal or different, is an unsubstituted or substituted cyclopentadienyl compound, and R' and R", independent of each other, are selected from the group consisting of alkyls having 1 to 6 carbon atoms, unsubstituted or substituted benzyl, and phenoxy substituted with alkyls having 1 to 6 carbon atoms, and R' or R" may be a halide, and characterized by a molar ratio between zirconium and chromium in the final catalyst in a range from 0.1:1 to not higher than 2:1.

13. (New) A catalyst system according to claim 1, characterized in that the reduction of chromium is effected using a reducing agent comprising carbon monoxide.

14. (New) A method according to claim 12, characterized in that said subjecting said catalyst precursor to reducing conditions is performed at a temperature within the range from 300°C to 500°C.

15. (New) A method according to claim 12, characterized in that subjecting said catalyst precursor to reducing conditions uses a reducing agent comprising carbon monoxide.

16. (New) A method according to claim 14, characterized in that subjecting said catalyst precursor to reducing conditions uses a reducing agent comprising carbon monoxide.